

# High efficiency, three-digit numeric displays

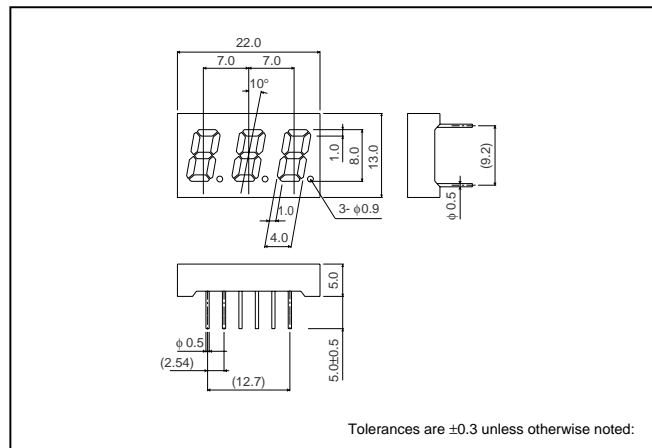
## LB-303AK Series

The LB-303AK series were designed to meet the need for multi-digit numeric displays. These LED numeric displays use GaAsP on GaP for the emitting material (with the exception of green) and are housed in an epoxy resin package. They are three-digit displays with a character height of 8.0 mm.

**●Features**

- 1) Height of character : 8.0 mm
- 2) High efficiency in a compact package.
- 3) Common anode and common cathode configurations are available for red, orange and green.
- 4) The package surface is painted black and the segments are colored the display color.

**●Dimensions (Unit : mm)**

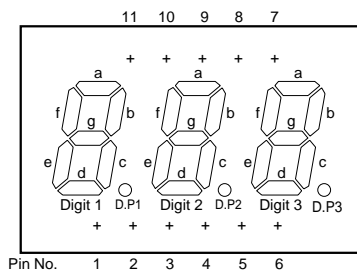


**●Selection guide**

Emitting color	Red	Orange	Green
	Common		
Anode	LB-303VA	LB-303DA*	LB-303MA
Cathode	LB-303VK	LB-303DK*	LB-303MK

\*Order-based production.

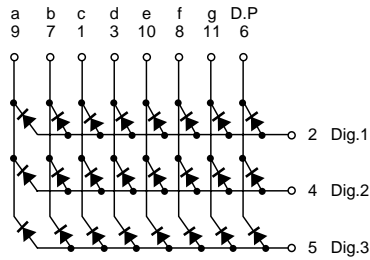
**●Pin assignments**



Pin No.	Function
1	Segment "c"
2	Digit 1 Common
3	Segment "d"
4	Digit 2 Common
5	Digit 3 Common
6	Segment D.P
7	Segment "b"
8	Segment "f"
9	Segment "a"
10	Segment "e"
11	Segment "g"

LED displays

● Internal circuit schematic (example of common anode)



● Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Red	Orange	Green	Unit
		LB-303VA / VK	LB-303DA / DK	LB-303MA / MK	
Power dissipation	P <sub>D</sub>	960	960	1440	mW
Power dissipation	P <sub>D</sub> / seg	40	40	60	mW
Forward current	I <sub>F</sub>	15	15	20	mA
Peak forward current	I <sub>FP</sub>	60*	60*	60*	mA
Reverse voltage	V <sub>R</sub>	3	3	3	V
Operating temperature	T <sub>opr</sub>	-25 to +75			°C
Storage temperature	T <sub>stg</sub>	-30 to +85			°C

\* Pulse width 1ms duty 1 / 5

● Electrical and optical characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	Red			Orange			Green			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Forward voltage	V <sub>F</sub>	I <sub>F</sub> = 10mA	-	2.0	2.8	-	2.0	2.8	-	2.1	2.8	V
Reverse current	I <sub>R</sub>	V <sub>R</sub> = 3V	-	-	100	-	-	100	-	-	100	μA
Peak wavelength	λ <sub>P</sub>	I <sub>F</sub> = 10mA	-	650	-	-	610	-	-	563	-	nm
Spectral line half width	Δλ	I <sub>F</sub> = 10mA	-	40	-	-	40	-	-	40	-	nm

© Not designed for radiation resistance.

● Luminous intensity

Color	λ <sub>P</sub>	Type	Min.	Typ.	Max.	Unit
Red	650	LB-303VA	1.4	4.0	-	mcd
		LB-303VK				
Orange	610	LB-303DA	1.4	4.0	-	mcd
		LB-303DK				
Green	563	LB-303MA	2.2	6.3	-	mcd
		LB-303MK				

Note : Measured at I<sub>F</sub> = 10mA

LED displays

● Electrical and optical characteristic curves

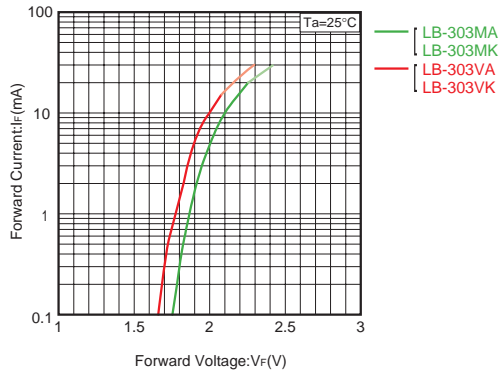


Fig.1 Forward Current - Forward Voltage

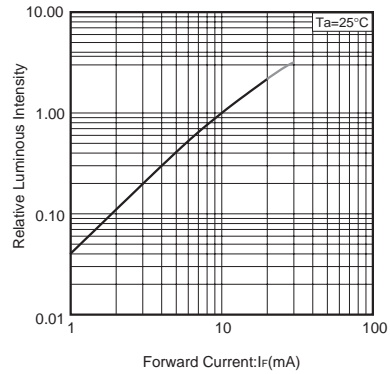


Fig.2 Relative Luminous Intensity - Forward Current

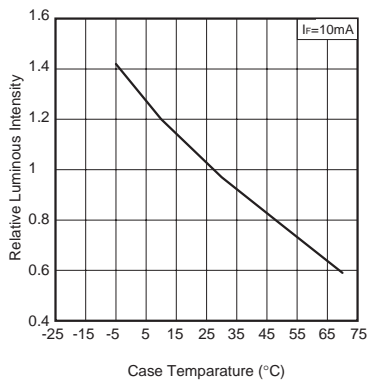


Fig.3 Relative Luminous Intensity - Case Temperature

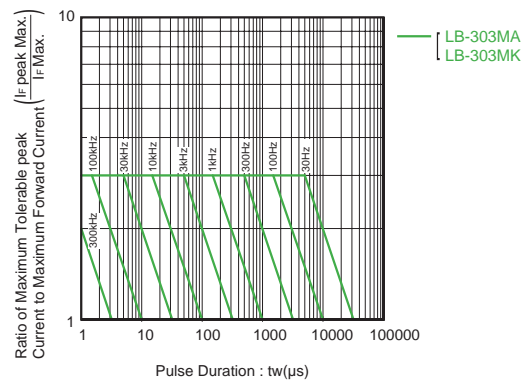


Fig.4 Ratio of Maximum Tolerable Peak Current - Pulse Duration ( I )

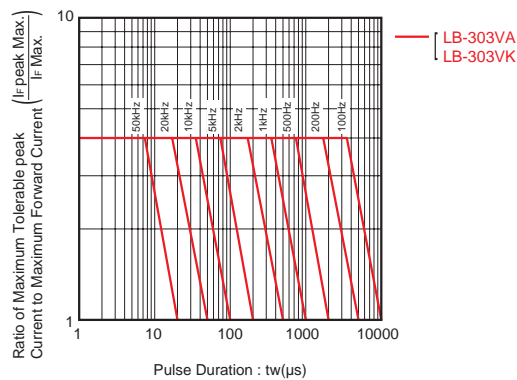


Fig.5 Ratio of Maximum Tolerable Peak Current - Pulse Duration ( II )

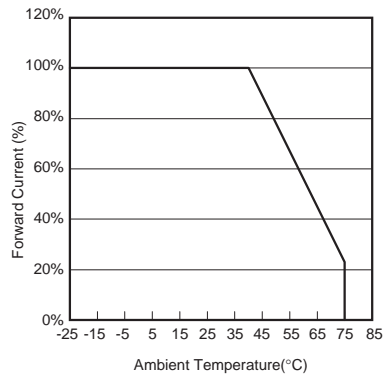


Fig.6 Derating

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